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## GSA Annual Meeting in Phoenix, Arizona, USA - 2019

Paper No. 271-11

Presentation Time: 9:00 AM-6:30 PM

CAPTURING A LATE CRETACEOUS PALEOFAUNA: A NEW VERTEBRATE MICROFOSSIL BONEBED IN THE UPPER CRETACEOUS (CAMPANIAN) JUDITH RIVER FORMATION, MONTANA

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The Upper Cretaceous Judith River Formation in the Upper Missouri River Breaks National Monument has a long history of paleontological discovery and research. The formation is particularly noteworthy for its preservation of vertebrate microfossil bonebeds (VMBs), which are taxonomically diverse concentrations of small bones (and bone fragments), teeth, and scales. VMBs play an important role in reconstructing terrestrial vertebrate paleofaunas in Mesozoic ecosystems. We report here a new VMB (WBN 15-18) discovered in the Coal Ridge Member of the Judith River Formation. Fossils are preserved in mudstone that accumulated in a lacustrine setting in close proximity to the Western Interior Seaway. Approximately 3,000 vertebrate specimens have been recovered from the site through surface collection as well as disaggregation of bulk samples. Samples were washed through 2 mm and 500 µm sieves, and several hundred bones and bone fragments were recovered, including more than 250 elements that can be identified to specific taxonomic groups. The fine-grained fossil fraction captures a faunal diversity that is not well represented in surface collections, thus broadening the faunal list to include very small teleost fishes, a diversity of amphibians, and trematode parasites (as evidenced by igloo structures on bivalve shell fragments). The surface collection (n=1193) includes an array of well-known Judith River vertebrates: *Myledaphus*, a diversity of osteichthyan fishes (e.g. *Lepisosteus*) and turtles (*Basilemys*, trionychids, and chelydrids), *Brachychampsia*-like crocodiles, *Champsosaurus*, *Scapherpeton*, lizards, and multituberculata mammals. A diverse dinosaurian fauna is represented by teeth of maniraptorans and tyrannosaurids, and a vertebra from an ornithomimid. Ornithischian dinosaurs are represented by abundant hadrosaur tooth fragments, and relatively rare ceratopsian, pachycephalosaur, and ankylosaur teeth. Finally, the locality is unique among known Judith River VMBs because it includes the well preserved remains of a juvenile hadrosaur, including two associated femora (length = 42 cm; ~35% adult). Future excavations are planned in hopes of discovering more diagnostic material of this individual.

Session No. 271--Booth# 210

D17. Paleontology: Biogeography/Biostratigraphy (Posters)

Wednesday, 25 September 2019: 9:00 AM-6:30 PM

Hall AB, North Building (Phoenix Convention Center)

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